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ABSTRACT

Through an examination of the background and current status of programs at the National Center for Research in Vocational Education, one can identify many research problems and issues. Some of these current National Center programs include a diffusion program (combining five U.S. Office of Education-sponsored projects), research and development (R&D) efforts (focusing on operational problems in National Center diffusion and information systems), and information system activities (including the ERIC Clearinghouse on Adult, Career, and Vocational Education, the National Center Clearinghouse, and the Resource and Referral Service). Based on these and past activities, eight issues can be identified as potential research topics concerning educational dissemination and utilization: (1) a discrepancy exists between national priorities and local user needs for the dissemination of R&D results; (2) communication processes need further development; (3) practitioner capability to obtain and use R&D information needs strengthening; (4) diffusion of innovation strategies have not been validated; (5) information about exemplary programs is not valid or reliable; (6) methods of conceptualizing and measuring the impact of R&D based information have not been developed; (7) the issue of selective versus comprehensive information systems needs resolution; and (8) the roles and relationships of public and private agencies active in dissemination and utilization need clarification. (CSS)

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RESEARCH NEEDS IN DIFFUSION, CHANGE AND INFORMATION SYSTEMS

Paper prepared for an invitational Conference on Research on Dissemination and Utilization in Education at the University of Texas on October 4-6, 1978

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RESEARCH NEEDS IN DIFFUSION, CHANGE, AND INFORMATION SYSTEMS

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The research problems and issues identified in this paper spring from operational programs at the National Center for Research in Vocational Education conducted since 1965. They are offered as a point of departure for discussion of dissemination and utilization research needs. This paper is organized to reflect the background and current diffusion, change process R&D, and information systems activity of the National Center which gave rise to researchable problems and issues. These are illustrated in Figure 1 and explained in the text.

Background

The diffusion of R&D-based products and information by the National Center began in typical fashion: products and reports were submitted to ERIC, initially distributed to prime audiences, and sold on a cost recovery basis. When it became apparent that ERIC accessibility and complimentary distribution did not result in diffusion, extensive printing was discontinued and the resources redirected toward dissemination planning and awareness activities. Cost recovery capability was improved to accomodate the increased demand for a growing number of products.

Early studies on opinion leadership in vocational education led to the development of a multi-year change process R&D program. This program was based upon a conceptual framework arising from

earlier literature review. It included surveys of information needs of vocational education and studies of opinion leadership, change orientation, diffusion strategies, implementation, and innovation characteristics in vocational education. While the change process R&D program was largely theory based and organizationally independent, it drew contextual and operational perspective from the diffusion and information systems activities of the National Center.

ERIC Clearinghouse development and operation has been the keystone of the National Center's information systems program. The National Center was involved in early efforts to develop the indexing language, computerize the document collection, conduct information analysis, and provide user services. AIM/ARM, an ERIC-compatible supplement to ERIC, was developed into a full-fledged project to meet vocational education information needs. Concurrently, the National Center linked with state research coordinating units (RCUs) to disseminte R&D-based products and information to local users. This interface continues to feed dissemination network development today.

Current Activities

Diffusion

The current diffusion program of the National Center combines five USOE-sponsored projects, placing programmatic emphasis on systematic, continuous approaches to dissemination and utilization of nationally-significant products and information from diverse

sources. Major emphasis has been on collaboration with other organizations, principally the state research coordinating units (RCUs), regional curriculum coordination centers (CCCs), and state liaison representatives (SLRs) for curriculum. A National Planning and Implementation Conference in September 1978, involving sixty individuals from thirty-three states, gave the National Center the mandate to define a comprehensive program improvement configuration for vocational education. Participants agreed to cooperate in 1) further development of a nationwide network of D&U collaborators, 2) coordinated study of vocational education R&D impact and 3) articulation of national, regional and state information services.

The D&U system project makes criteria-based selections of the best available R&D-based, nationally-significant products and information for intensive D&U activities. D&U strategies are developed and implemented collaboratively with state and regional agencies. Another project prepares and distributes special packages of diverse resources for selected new and developing occupations. A third project provides leadership through training and liaison to RCUs and CCCs. Long-term staff development programs are projected in cooperation with these groups. Fourth, a knowledge transformation project will yield 16 papers this year in the National Center's themes: planning, evaluation, sex equity, and special populations. Heightened emphasis is now being given to knowledge transformation and communication through a wider variety of media forms. A study to determine the distri-

bution, utilization, and impact of vocational education R&D products and information is another project in the National Center's on-going diffusion program. With instrument development underway, data collection is being planned collaboratively with the RCUs.

Change Process R&D

Formal support of Change Process R&D terminated in 1976 and R&D effort is currently directed at operational problems in diffusion and information systems activities at the National Center. These include the Impact Study in the USOE-sponsored Dissemination and Utilization program, case studies in the NIE-sponsored Dissemination Articulation project and the Evaluation component of the NIE-sponsored Resource and Referral Service. These activities are indicated with an asterisk in Figure 1.

Information Systems

Information system activity at the National Center currently includes three operating programs. Each program has a specific scope and purpose, which contributes to a more comprehensive information resource base nationwide.

ERIC Clearinghouse on Adult, Career and Vocational Education (ERIC/CE). One of 16 clearinghouses in the NIE's ERIC system, ERIC/CE has responsibility for building the document collection, conducting information analysis, and providing user services in its scope area.

	BACKGROUND	CURRENT ACTIVITY	PROBLEMS & ISSUES
DIFFUSION	PRODUCT SALES PRODUCT UTILIZATION - Dissemination Planning - Program Information - Cost Recovery Sales	DISSEMINATION & UTILIZATION - D&U System - Special Packages * Impact Study - Leadership to RCUs, CCCs - Knowledge Transformation	▲ National vs. Local D&U Focus • Knowledge Transformation Process • Practitioner Orientation & Capability • Diffusion strategies • Program & practice validity & reliability • Inpact conceptualization & measurement ▲ Selective vs. comprehensive input and output • Configuration of agency roles & relationship
CHANGE R&D	EARLY STUDIES - Opinion Leadership - State of the Art CHANGE PROCESS R&D - Information Needs - Opinion Leadership - Change Orientation - Diffusion Strategies - Implementation - Innovation Characteristics	The agenda for future change R&D is embodied in the problems and issues growing out of current activity. These are identified at the right and explained in the text DISSEMINATION ARTICULATION - Articulation Guide - Technical Assistance * Case Studies	▲ Configuration of agency roles & relationships • Diffusion strategies
INFORMATION SYSTEMS	NETWORK DEVELOPMENT - State Information Services Guide - Target Audience Study - Information Specialist Training ERIC CLEARINGHOUSE (VT) - Data Base Building - Information Analysis - User Services AIM/ARM PROJECT - File Partition - Project Information - Knowledge Interpretation - User Services	RESOURCE & REFERRAL SERVICE - Data Base Building (Organizations) - User Services through RDx * System Evaluation ERIC CLEARINGHOUSE (CE) - Data Base Building - Information Analysis - User Services NATIONAL CENTER CLEARINGHOUSE - Access & Crosswalk to Systems & Networks - Military-Developed Curriculum - Project Tracking & Reporting	• Practitioner orientation & capability ▲ Selective vs. comprehensive input and output • Configuration of agency roles & relationships • Knowledge Transformation process • Practitioner orientation & capability • Program & practice validity & reliability ▲ Selective vs. comprehensive input and output • Configuration of agency roles & relationships • Practitioners orientation & capability • Program & practice validity & reliability ▲ Selective vs. comprehensive input and output

Figure 1. Diffusion, Change, and Information Systems at the National Center for Research in Vocational Education

National Center Clearinghouse. A function of the USOE contract for a National Center, the Clearinghouse provides vocational education with 1) access to various dissemination systems and networks, 2) availability of military-developed curriculum for occupational education, and 3) a tracking system for vocational education R&D projects.

Resource and Referral Service (RRS). One of the organizational components of the NIE's Research and Development Exchange (RDx), RRS has responsibility for 1) building a data base about R&D organizational resources, 2) providing user service on priority problems through other RDx components, and 3) evaluating various aspects of its own products and services.

Through an NIE-sponsored project, the National Center is endeavoring to help RCUs articulate their activities with other information dissemination programs in the states. An articulation guide will be developed, technical assistance given and case studies conducted.

Problems and Issues for Research

The following issues are suggested for discussion as potential topics for a research agenda in educational Dissemination and Utilization. They are not mutually exclusive, and no attempt has been made to determine the amenability of these ideas for further research.

1. A discrepancy exists between national priorities for the dissemination of R&D results and the needs perceived by local users.

This issue encompasses questions of local concerns, regionalism, and nationally designated priorities as a basis for setting program improvement goals. Although national priorities clearly seem to be expressions of widespread, commonplace needs, local professionals are nevertheless confronted by unique, site-specific pressures. Very often national priorities are perceived as non-responsive to locally-perceived needs for D&U assistance. At present, no reliable means exists for sensing the dissemination needs of local practitioners nationwide. Nor is enough known about how to communicate with local practitioners in ways which heighten the significance of national priorities in relation to their own priorities and ongoing practice.

2. Processes of knowledge transformation and communication need further development.

The intellectual processes involved in transforming knowledge from one form to another needs further development. Processes such as compaction, interpretation, application, analysis, synthesis, and evaluation have been identified but guidelines have not been developed on how and when to use them. The media forms and channels for communicating transformed knowledge also need extensive examination, possibly in an experimental format.

3. Practitioner capability to obtain readily and use R&D-based information and practices needs strengthening.

The problem of poor access to educational products, information and practices for professional educators, rural people, equity audiences, and the general public needs careful study. Some practitioners desire information but lack ready access to it. Others do not value accessible information and hence do not seek it. Further, there seems to be limited relevance of much educational research to the needs of teachers for help with their instructional problems, of administrators for advice on improved management, or of policymakers for information to guide decision on education. Insufficient access to relevant, applicable information and products seems to result in failure to use knowledge derived from R&D and outstanding practice. In rural areas and in schools serving minority persons and poor persons, the problem is especially acute. The question of how to reach the general public in order to create a conducive climate for program improvement also emerges in this research problem.

4. Strategies for the diffusion of innovations have not been validated.

Despite conceptual frameworks and isolated research studies, no cumulative predictive evidence exists on the questions of when to use a particular dissemination strategy, e.g., demonstration, technical assistance, or mass distribution, in the diffusion of an innovation. Conventional wisdom prevails on an instance-by-instance basis in the diffusion of innovations. Persons formula-

ting strategies are forced to rely on their own experiences and perceptions of the immediate implementation context. Empirical knowledge of strategy effectiveness in a variety of settings is needed. Diffusion specialist should be able to predict with some degree of accuracy the probable effects of using selected diffusion strategies with client audiences.

5. Information about exemplary programs and practices is not valid or reliable.

The present level of technology used in the dissemination of information about exemplary programs and practices places the responsibility for use of these practices upon the client adopter. Very little information is provided on the likely effects of using the exemplary practice in new or different settings. The person wanting to use the practice is likely to be influenced principally by the personality of the exemplary program director or impressed by results attributable to the unique characteristics of the development site. This condition places the disseminator in the untenable position of recommending practices for which information is inadequate. A program is needed to standardize and upgrade the information obtained from exemplary programs and practices for the benefit of prospective adopters.

6. Methods of conceptualizing and measuring the impact of R&D based information and products have not been developed.

There is little evidence of the impact of R&D information and products. The literature is replete with complaints about the lack of documentation of impact. Tools exist for the design

and conduct of evaluative studies, but the conceptual base for the measurement of impact of R&D-based information and products does not exist. Persons concerned withthe effectiveness of diffusion strategies and program improvement activities should investigate different ways of conceiving and measuring the impact of R&D-based information and products.

7. Selective versus comprehensive input to and output of information systems needs resolution.

A classical paradox always arises when information resource systems or information user services are being designed. Should the information system be selective or comprehensive in its development of the data bank? Should the user service make selections for its clients or give the client everything available with no caveats? Considered together as a cost effectiveness issue, the resolution can be based on collection development and maintenance requirement (cost) versus the use of the system (benefit).

8. The configuration of roles and relationships of public and private agencies active in D&U needs clarification.

Federal, state, and local public support of educational program improvement has given rise to several nationwide D&U programs with a myriad of state and local variants. The complaint of duplication is not without cause. A major effort is needed to articullate the diverse and sometimes overlapping roles of various agencies in D&U. This has vertical (i.e., Federal, state and local), substantive (e.g., general, vocational, or special education), organizational (e.g., NDN, capacity building program, ERIC, RDx,

etc.), and public vs. private dimensions. Approaches to achieving coordination of effort among dissemination and utilization agencies are needed.

The problems and issues identified in this paper were derived from a background of experience and current activities in dissemination at the National Center. But their foci are generic and their applications pervasive throughout education. The problems and issues are rooted in the need for better ways to improve programs in education. Carefully designed and coordinated R&D on dissemination and utilization problems and issues should lead the way to improved educational programs. The National Center plans to continue its program improvement activities, bringing to bear its resources for diffusion, change, and information systems.